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MEMORY. Lectures on the Specific Energies of the Nervous System. By Professor EWALD HERING. Fourth Edition, enlarged. The Open Court Publishing Co. 1913. Pp. 70. \$1.00.

The first chapter of this book is a lecture on Memory as a general function of organized matter, delivered by Professor Hering at Vienna in 1870. In it the author attempts to correlate physiology and psychology. While the title of the lecture would seem to imply materialistic assumptions, Professor Hering denies such implications. He is quite willing to admit that "the material processes of the cerebral substance also appear to be functions of the phenomena of consciousness."

As a psychologist having strong interest in physiological processes, Professor Hering has undertaken to explore the nebulous realm of relation between the physiological and the psychological. While his conclusion that there are brain changes accompanying the phenomena of memory may be accepted without controversy, there appears to be little profit in speculating about the chemical aspects of the processes involved. Professor Hering in his logical wanderings seems to have left behind the realm of possible verification through experiment. His conjectures have been scientifically unproductive in the forty odd years since the lecture was delivered. Few biologists to-day will give much credence to his deduction that "the substance of a germ is able to reproduce what the parental organism has acquired during its individual life." Since this conjecture was made, we have accumulated too much evidence to the contrary, and have learned that the acquisitions of the parent, beneficial or injurious, are not transmitted to the offspring. At least this form of organic memory, which is so strongly emphasized in Dr. Hering's lecture, seems disproved.

The other essays—upon "The Specific Energies of the Nervous System" and "The Theory of Nerve Activity"—are more specifically discussions in the domain of nerve physiology. Dr. Hering appears to have good grounds for the supposition that the impulses along nerves differ qualitatively, but experimental demonstration of the fact is still wanting. It has only recently (1913) been proven that the transmission of impulses along a nerve involves a chemical change. Dr. Hering thinks that he is able to demonstrate on logical grounds that "the path taken by an excitation is coincidentally determined by the quality of that excitation," and is led to infer an unconscious organic memory of past nervous experiences. It would seem that other terms than psychological ones might be used

to express the physiological processes under discussion. Even if the psychologist finds it advantageous to use the question-begging phrase of "unconscious memory," physiological students may properly object to its introduction into a treatise on nerve physiology. Possibly, however, in the case of a theoretical thinker like Professor Hering, who has made important contribution to the theory of color vision and other aspects of physiological-psychology, considerable license may be permitted.

THE MEANING OF EVOLUTION. SAMUEL CHRISTIAN SCHMUCKER, Ph.D.
The Macmillan Company. 1913. Pp. 298. \$1.50.

"How beautiful!" exclaimed a college student, as for the first time he saw a living cell under the microscope. "Never mind the beauty," said his instructor, "we are not concerned with beauty in this course." Technically the pedagogue was correct, although the student might have suggested that in a complete interpretation of life beauty may not be disregarded.

It is refreshing to read a book like Professor Schmucker's in which evolution is studied from more than a single aspect and is interpreted in other terms than those of morphology alone. The interests of the writer are broad, and in this book he brings his science into relation with his philosophy and his theology. He seems to have no difficulty in reconciling a mechanistic with a teleological view of the universe. While his interpretation of nature is naturalistic and thoroughly scientific it is also idealistic and reverent. To Professor Schmucker evolution is God's mode of creation. Nature reveals the Infinite Presence. With an increasing number of biologists the writer of this book appreciates the bankruptcy of materialism.

The book is persuasively written, full of interesting observations of which many are original, and is evidently the product of mature thought. The scientific layman will find the terminology comprehensible and the style lucid. The writer has given us a book which is readable as well as scientifically trustworthy. The sentimentality of the foreword is amply atoned for in the subsequent chapters.

For excellent reasons Professor Schmucker emphasizes the distinction between evolution and Darwinism, and shows that the acceptance of evolution as a fact does not depend upon the Darwinian hypothesis. He is tolerant of Lamarckism—as might be expected of a pupil of Cope—and thinks that the inheritance of acquired characteristics may have been a factor in organic evolu-